

Nos. 24-1889, 24-2663

**UNITED STATES COURT OF APPEALS
FOR THE EIGHTH CIRCUIT**

SORPTIVE MINERALS INSTITUTE, et al.
Petitioners,

v.

MINE SAFETY AND HEALTH ADMINISTRATION, et al.,
Respondents.

Petition For Review Of An Order Of The Federal Mine Safety &
Health Administration

**OPENING BRIEF OF PETITIONERS
SORPTIVE MINERALS INSTITUTE AND
BLUE MOUNTAIN PRODUCTION COMPANY**

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SUMMARY OF THE CASE

On April 18, 2024, MSHA revised its existing regulation governing workplace exposures to silica. A few years prior, OSHA similarly revised its existing silica regulation. In evaluating risk, OSHA had found that there was “no sound basis” to determine that sorptive clays posed a significant risk at the level of the then-existing standard, so *excluded* sorptive clays from its revised (more stringent) regulation. In examining the same science, and on the basis of an identical statutory authorizing provision, MSHA *included* sorptive clays within its analogous revised regulation. MSHA reached its contrary decision by declaring that “unlike OSHA” it “ha[d] no requirement to identify a ‘significant risk’ before regulating[.]” Such unfettered authority to regulate raises serious constitutional questions about the agency’s power and is contrary to Supreme Court precedent. In addition, MSHA’s decision is arbitrary and capricious, and exceeds the statutory authority granted to it under the Mine Safety and Health Act.

Because this petition raises important questions regarding the scope of MSHA’s statutory and constitutional authority, Petitioners respectfully request twenty minutes to present argument.

RULE 26.1 CORPORATE DISCLOSURE STATEMENT

Petitioner Sorptive Minerals Institute (SMI) has no parent corporation, and there is no publicly held corporation that owns 10 percent or more of its stock.

Petitioner Blue Mountain Production Company's (Blue Mountain) parent corporation is Oil-Dri Corporation of America, which is a publicly held corporation that wholly owns Blue Mountain.

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JURISDICTIONAL STATEMENT

The Secretary of Labor (Secretary) is authorized to promulgate health standards to protect mine workers. 30 U.S.C. § 811(a). Those standards are enforced by the Mine Safety and Health Administration (MSHA). *Id.* § 813. A party adversely affected by any such standard may file a petition challenging the standard's validity within 60 days of its promulgation. *Id.* § 811(d).

Here, Petitioners SMI and Blue Mountain challenge the Secretary's failure to exempt the sorptive clay industry from MSHA's revised silica standard, *Lowering Miners' Exposure to Respirable Crystalline Silica and Improving Respiratory Protection*, 88 Fed. Reg. 44852 (July 13, 2023) (hereinafter, New Rule). Add.003-270; App.___.

SMI participated in the rulemaking process by submitting a written comment and testifying at the public hearing. SMI filed its petition for review on April 29, 2024. Blue Mountain (with SMI), filed a petition in the Fifth Circuit Court of Appeals on June 14, 2024.¹

¹ Petitioner NSSGA also filed a petition in the Fifth Circuit. Because SMI's petition to this Court was filed first, the Fifth Circuit transferred the other petitions to this Court. 28 U.S.C. § 2112.

This Court has jurisdiction to adjudicate this matter because the earliest petition (24-1889) was filed with this Circuit, and both SMI's and Blue Mountain's petitions were filed within the 60-day window provided by statute. 28 U.S.C. § 2112; 30 U.S.C. § 811(d).

A party has standing to seek redress in federal court when: the party has suffered an injury in fact; there is a causal connection between the injury and conduct complained of; and the injury will be redressed by a favorable decision. *Lujan v. Defs. of Wildlife*, 504 U.S. 555, 560-61 (1992). An association has standing to litigate on behalf of its members when: any member would have standing to sue in its own right; the interests it seeks to protect are germane to its purpose; and participation of the members is unnecessary. *United Food & Commer. Workers Union Local. 751 v. Brown Grp.*, 517 U.S. 544, 552 (1996); *Kuehl v. Sellner*, 887 F.3d 845, 851 (8th Cir. 2018).

Petitioners have standing to bring this challenge. Blue Mountain's mining operations are subject to MSHA's jurisdiction, and it will be forced to expend significant resources to comply with the rule. ID 5464031.² Blue Mountain would not suffer this injury but for the

² A citation to "ID" is a cross-reference to the Entry ID number of a

Secretary's overreach in promulgating the rule. *Id.* This injury could be redressed if this Court were to vacate the rule as it applies to the sorptive clays industry. *Id.*

SMI is a not-for-profit, national trade association representing member companies that are producers in the sorptive clays industry and are subject to the requirements of the challenged rule. ID 5464031. One of SMI's purposes is to promote and protect its members' interests in their long-range growth, which is threatened by the agency's rule. SMI members would have standing to challenge the rule. ID 5464031. SMI thus has standing to challenge the rule because: its members would have standing in their own right; its interest in protecting the members' long-range growth is germane to SMI's purpose; and individual member participation is not needed for this Court to grant the requested relief. ID 5464031.

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STATEMENT OF ISSUES PRESENTED

1. Whether the New Rule exceeds MSHA's statutory authority, jurisdiction or limitations under the Mine Act?

- 5 U.S.C. § 706(2)(C)
- 30 U.S.C. § 811(a)(6)(A)
- *Industrial Union Department, AFL-CIO v. American Petroleum Institute*, 448 U.S. 607 (1980) (plurality opinion).
- *Nat'l Mining Ass'n v. MSHA*, 116 F.3d 520 (D.C. Cir. 1997) (analyzing MSHA standard under the Benzene significant risk standard).
- *Loper Bright Enterprises v. Raimondo*, 144 S. Ct. 2244 (2024).

2. Whether the New Rule is arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law?

- 5 U.S.C. § 706(2)(A)

3. Whether the New Rule violates the Mine Act because it was not based on the best available evidence, the latest scientific data in the field, and experience gained under that and other health and safety laws?

- 30 U.S.C. § 811(a)(6)(A)
- 29 U.S.C. § 655(b)(5)

4. Whether MSHA's determination that it is not required to make a threshold finding of significant risk before promulgating a regulation potentially violates the U.S. Constitution?

- *Indus. Union Dep't, AFL-CIO v. API*, 448 U.S. 607 (1980) (plurality opinion).
- 30 U.S.C. § 811(a)(6)(A)
- *Loper Bright Enters. v. Raimondo*, 144 S. Ct. 2244 (2024).

STATEMENT OF THE CASE

I. Regulatory Background

The Occupational Safety and Health Act (OSH Act) enacted in 1970, and the Mine Safety and Health Act (Mine Act), enacted in 1977, contain substantively identical authorizing provisions setting forth the Secretary of Labor's authority to promulgate standards governing exposure to toxic materials, such as silica.³ 29 U.S.C. § 655(b)(5); 30 U.S.C. § 811(a)(6)(A). For decades, OSHA and MSHA, enforced equivalent PELs for respirable crystalline silica, set at roughly 100 µg/m³.

A. *In 2016, OSHA revised its existing PEL for silica but excluded sorptive clays from the rule.*

In 2016, OSHA revised its rule to reduce the PEL for silica. *Occupational Exposure to Respirable Crystalline Silica*, 81 Fed. Reg. 16286 (March 25, 2016).⁴ During that OSHA rulemaking, SMI submitted a voluminous record of scientific literature, peer-reviewed studies, testimony and comments showing that the silica found in sorptive clays

³ When discussing agency regulation of silica in this brief, the term “silica” refers to respirable crystalline silica unless otherwise stated.

⁴ OSHA excluded amorphous silica from its revised silica regulation.

is not fractured during processing operations and does not present the same toxicity risk that exists in other industrial settings. *See* 81 Fed. Reg. at 16376-16377.

After a 2½-year extensive evaluation of the science of silica toxicity, OSHA stated that “it is clear” that the crystalline silica encountered in the sorptive clays industry “is considerably less toxic” than that encountered elsewhere. 81 Fed. Reg. at 16377. Specifically, “based on careful review of the studies SMI cited,” OSHA found that “silica in bentonite clays [sorptive clay] is of lower toxicological potency than that found in other industry sectors.” 81 Fed. Reg. at 16379. OSHA further found that “although the studies provide[d] evidence of some biological activity in quartz originating from bentonite deposits, there is not quantitative evidence that would permit the agency to evaluate the magnitude of the lifetime risk resulting from exposure to quartz in bentonite-containing materials and similar sorptive clays.” 81 Fed. Reg. at 16379.

Following a full and thorough evaluation of the record, OSHA concluded that while “the evidence for quartz originating from bentonite deposits indicates some biological activity,” it “also indicates *lower*

toxicity than standard experimental quartz[.]” 81 Fed. Reg. at 16380 (emphasis added). Thus, “[f]or regulatory purposes,” OSHA found that “the record provide[d] *no sound basis for determining the significance of risk* for exposure to sorptive clays containing respirable quartz.” 81 Fed. Reg. at 16380 (emphasis added). Because it had “no sound basis” on which to establish significant risk under the existing standard, OSHA excluded sorptive clays from its revised standard. *Id.* (“Thus, OSHA is excluding sorptive clays ... from the scope of the rule[.]”).

Instead, OSHA determined that it would continue to apply the existing PEL of 100 µg/m³ to sorptive clays. *Id.* OSHA justified its enforcement of a different PEL in the sorptive clays industry by noting that “the processing of sorptive clays is a very small industry sector, and OSHA finds that this sector can be readily segregated from other industry sectors covered by the rule.” 81 Fed. Reg. at 16757.

B. In 2024, MSHA revised its existing PEL for silica, but did not exclude sorptive clays from the scope of its rule.

Seven years later, MSHA followed suit and promulgated its own proposed rule to revise its existing silica standard. During that rulemaking, SMI submitted to MSHA the same voluminous record of scientific literature, testimony and information, as well as more recent

scientific studies developed after OSHA’s rulemaking. 89 Fed. Reg. 28235 (Apr. 18, 2024). MSHA acknowledged that “many of the studies” asserted that “occluded or aged quartz is less toxic but have not suggested that occluded or aged quartz is *not toxic* or carries *no risk* of disease.” 89 Fed. Reg. at 28235 (emphasis added).

Even though MSHA “largely based” its “final risk assessment” on the methodology and findings from OSHA’s preliminary and final quantitative risk assessments, 89 Fed. Reg. at 28245, MSHA found “that ‘lower toxicity’ does not imply *the absence* of adverse health effects.” 89 Fed. Reg. at 28256 (emphasis added). While the agency acknowledged that OSHA had found “no sound basis” to alter the existing standard for sorptive clays, it asserted that “unlike OSHA,” it had no obligation to find significant risk before regulating – it said:

In its 2016 final rule, OSHA concluded that quartz originating from bentonite deposits had some biological activity but “lower toxicity” than quartz encountered in most workplaces. OSHA also found that the record provided no sound basis for determining the significance of risk for exposure to sorptive minerals containing quartz, and thus decided to exclude sorptive minerals from the scope of the final rule. *MSHA, unlike OSHA, has no requirement to identify a “significant risk” before promulgating rules to protect miners’ health and safety.*

89 Fed. Reg. at 28302-28303 (emphasis added) (citing *Nat'l Mining Ass'n v. United Steel Workers*, 985 F.3d 1309, 1319 (11th Cir. 2021)).

Accordingly, MSHA did not exempt sorptive clays from the requirements of its New Rule. 89 Fed. Reg. at 28303. Following MSHA's promulgation of the New Rule, SMI petitioned this Court for review.

C. The sorptive clays industry

Compliance with this standard will be exorbitantly costly for the industry. The sorptive clay industry in the United States is a very small segment of the mining industry, with only approximately 40 facilities and fewer than 2,000 miners nationwide (0.6 percent of the approximately 325,000 miners subject to the New Rule).

Additionally, the practical consequences of this are worth noting, for operations regulated by OSHA and MSHA can and do occur in the same facility and at the same time. MSHA and OSHA thus exercise dual enforcement authority within the same buildings at sorptive clay processing facilities, albeit for different operations. Without an exemption from the New Rule, SMI members will be subject to two conflicting regulatory mandates.

SUMMARY OF THE ARGUMENT

MSHA's view of the reach of its regulatory authority pursuant to the Mine Act is contrary to Supreme Court precedent interpreting identical authorizing language in the OSH Act, contrary to the Constitution, and contrary to the commonsense principle that the same words should be given the same meaning.

The Supreme Court has long held that when regulating toxic materials, OSHA must demonstrate "significant risk" before changing an existing standard. The statutes setting DOL's authority to promulgate regulations on toxic material in the Mine Act and OSH Act are identical. As a matter of law and policy, MSHA should therefore be held to the same standard. A contrary view would delegate to the agency *carte blanche* legislative authority in violation of the Constitution.

Not only did MSHA disclaim any obligation to make a determination of significant risk, it cherry-picked from among the data and studies submitted, disregarded contrary evidence, and even excluded from the administrative record evidence that undermined its pre-determined conclusion not to exempt sorptive clays from the scope of its rulemaking, even though it admitted (as OSHA had previously) that the

silica in sorptive clays is less toxic than silica encountered in the broader mining industry. This behavior was arbitrary, capricious and contrary to law.

ARGUMENT

I. Standard of Review

Administrative agencies do not have unlimited authority to achieve their regulatory goals. Under the Administrative Procedure Act (APA), a reviewing court must hold unlawful any agency action “in excess of statutory jurisdiction, authority, or limitations[.]” 5 U.S.C. § 706(2)(C). A court also must set aside agency actions found to be “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law[.]” 5 U.S.C. § 706(2)(A).⁵

To satisfy this standard, an agency must “examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made.” *Rauenhorst v. U.S. Dep’t of Transp., Fed. Highway Admin.*, 95 F.3d 715 (8th Cir. 1996). “Normally, an agency rule would be arbitrary and

⁵ Reviewing courts “shall decide all relevant questions of law, interpret constitutional and statutory provisions, and determine the meaning or applicability of the terms of an agency action.” 5 U.S.C. § 706.

capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.” *Northport Health Servs. of Ark., LLC v. U.S. Dep’t of Health & Human Servs.*, 14 F.4th 856, 873 (8th Cir. 2021).

Moreover, “[w]hen regulating under Section 101(a),” MSHA “is required, as always, to consider the relevant alternatives and identify the reasons for its preference.” *Nat’l Mining Ass’n v. MSHA*, 116 F.3d 520, 527 (D.C. Cir. 1997). In addition, “[a]s part of its explanation, the agency must respond to specific challenges that are sufficiently central to its decision.” *Id.*

Because “[a]n agency’s promulgation of rules without valid statutory authority implicates core notions of the separation of powers,” *U.S. ex rel. O’Keefe v. McDonnell Douglas Corp.*, 132 F.3d 1252, 1257 (8th Cir. 1998), a regulation must be struck down where the reviewing court is not “able to conclude that the grant of authority contemplates the regulations issued.” *Chrysler Corporation v. Brown*, 441 U.S. 281, 308

(1979). Thus, a rule must be “rational, based on consideration of the relevant factors and *within the scope of the authority delegated to the agency* by the statute.” *Mausolf v. Babbitt*, 125 F.3d 661, 669 (8th Cir. 1997) (emphasis added).

Of course, as the Supreme Court recently explained in *Loper Bright Enterprises v. Raimondo*, “(c)ourts must exercise their independent judgment in deciding whether an agency has acted within its statutory authority, as the APA requires.” 144 S. Ct. 2244, 2273 (2024). In making this decision, courts no longer analyze whether a particular interpretation is *permissible*; they search for the *best* interpretation. *Id.* at 2266 (“In the business of statutory interpretation, if it is not the best, it is not permissible”).

II. MSHA’s Revised Silica Rule Violates the APA Because It Is in Excess of Its Statutory Authority.

A. Long-standing Supreme Court precedent requires a showing of significant risk before regulating toxic materials.

More than forty years ago, the Supreme Court held that before revising an existing standard, OSHA must demonstrate that the standard presents a “significant risk” that the new standard will lessen or eliminate. *Industrial Union Department, AFL-CIO v. American Petroleum Institute*, 448 U.S. 607, 642 (1980) (plurality opinion)

(hereafter “*Benzene*”). Considering language from the OSH Act *substantively identical to the Mine Act language at issue here*, the Court held that before regulating a toxic substance, OSHA was required to make a “threshold finding” that the existing standard posed a “significant risk” to employees. *Id.*⁶

Benzene began its analysis by noting that section 3(8) of the OSH Act defined the phrase “occupational safety and health standard,” and applied to OSHA’s promulgation of *any* standard. *Benzene*, 448 U.S. at 612. Next, the Court noted that “[w]here toxic material or harmful physical agents are concerned, a standard *must also* comply with” section 6(b)(5) of the OSH Act. *Id.* (emphasis added). Thus, where the rulemaking

⁶ The relevant portions of *Benzene* constituted the opinion of a four-Justice plurality. Justice Rehnquist concurred only in the judgment because he believed the authority granted under the OSH Act unconstitutional as a violation of the nondelegation doctrine. 448 U.S. at 686-88. Under *Marks v. United States*, what binds this Court is “that position taken by those Members who concurred in the judgment[] on the narrowest grounds.” 430 U.S. 188, 193 (1977). For *Benzene*, that is surely the position of the plurality that left intact the OSH Act under an appropriate interpretation. A majority of the Supreme Court subsequently endorsed the *Benzene* plurality’s holding. *Nat’l Maritime Safety Ass’n v. OSHA*, 649 F.3d 743, 750 n.8 (D.C. Cir. 2011) (citing *Am. Textile Mfrs. Ass’n v. Donovan*, 452 U.S. 490 (1981)).

involved a toxic material or harmful agent governed by section 6(b)(5), OSHA had to comply with *both* section 3(8) and section 6(b)(5). *Id.*⁷

Focusing first on the language of section 3(8), the Court held that “before he can promulgate *any* permanent health or safety standard, the Secretary is required to make a threshold finding that a place of employment is unsafe – *in the sense that significant risks are present and can be eliminated or lessened by a change in practices.*” *Benzene*, 448 U.S. 642 (emphasis added). However, the Court did not rely on or construe section 3(8) alone, and it said the significant risk requirement “applies to permanent standards *promulgated pursuant to § 6(b)(5)*, as well as to other types of permanent standards.” *Id.* (emphasis added).

Specifically, the Court found that section 6(b)(5) *by itself* required the same threshold finding of significant risk: “requiring the Secretary to make a threshold finding of significant risk is *consistent with the scope of the regulatory power granted to him by § 6(b)(5)*, which empowers the Secretary to promulgate standards, not for chemicals and physical agents

⁷ The Court stated that its resolution “turn[ed], to a large extent, on the meaning of and the relationship between § 3(8) ... and § 6(b)(5),” emphasizing that it was construing “the meaning of” *two separate sections of the statute*, as well as “the relationship between” those two sections. *Benzene*, 448 U.S. at 639.

generally, but for ‘*toxic materials*’ and ‘*harmful physical agents*.’” *Benzene*, 448 U.S. at 642-43 (first emphasis added).

The Court found it “unreasonable to assume” that Congress intended to give OSHA “the unprecedented power that would result” if the statutory language did not require a finding of significant risk before revising an existing standard. *Benzene*, 448 U.S. at 645. Emphatically rejecting that view, the Court stated: “If the Government was correct in arguing that neither⁸ § 3(8) nor § 6(b)(5) requires that the risk from a toxic substance be quantified sufficiently to enable the Secretary to characterize it as significant ... the statute would make such a sweeping delegation of legislative power that it might be unconstitutional[.]” 448 U.S. at 646. Because “[a] construction of the statute that avoids this kind of open-ended grant should certainly be favored,” *id.*, the Court concluded: “the Act empowers the Secretary to promulgate health and safety standards *only where a significant risk of harm exists*.” *Id.* at 652 (emphasis added).

⁸ The word “neither” in this sentence again shows that the Court grounded its holding in the language of *both* section 3(8) *and* section 6(b)(5).

B. Section 101(a)(6)(A) of the Mine Act is identical to Section 6(b)(5) of the OSH Act and includes the same signals that led the Supreme Court to find a “significant risk” prerequisite in the OSH Act.

MSHA promulgated its New Rule pursuant to section 101(a)(6)(A) of the Mine Act, which sets forth the agency’s statutory authority related to “toxic materials or harmful physical agents.” The language of this provision is central to this case and *substantively identical* to the language of section 6(b)(5) of the OSH Act at issue in *Benzene*. Compare 29 U.S.C. § 655(b)(5) with 30 U.S.C. § 811(a)(6)(A).⁹

The Court did not rely solely on the “toxic materials” language in the first sentence of section 6(b)(5) in requiring a threshold predicate of significant risk. In fact, it stated that “[t]he rest of” section 6(b)(5) “contains phrases implying that the Secretary should consider differences in degrees of significance *rather than simply a total elimination of all risks.*” *Benzene*, 448 U.S. at 643 fn. 48. Those phrases, such as “most adequately assure”; “on the basis of the best available evidence”; and others, *id.*, are all present in the same form in Mine Act section 101(a)(6)(A).

⁹ The OSH Act includes four words (“to the extent feasible”) not included in the Mine Act.

Notably, in *Benzene* OSHA argued that the qualifier “material” in section 6(b)(5) meant the agency must eliminate “any risk of serious harm—no matter how small that risk may be.” *Id.* at 649. The Court rejected that interpretation, noting that earlier drafts of the OSH Act required standards to ensure that “no employee will suffer *any* impairment of health or functional capacity,” but that before adopting the statute, Congress revised that language to “*material* impairment.” 448 U.S. at 647 (emphasis added). That change, the Court said, showed that OSHA was not supposed to “make all workplaces totally risk-free.” *Id.* at 650. Again, Mine Act section 101(6)(A) contains the identical clause, which also was revised during legislative consideration of the bill to add the word “material.” 30 U.S.C. § 811(a)(6)(A).

Thus, although *Benzene* was about a different statute, its reasoning applies with equal force here and controls the interpretation of the Mine Act. *See* Antonin Scalia & Bryan A. Garner, *READING LAW: THE INTERPRETATION OF LEGAL TEXTS*, p. 323 (2012) (“[w]hen a statute uses the very same terminology as an earlier statute – especially in the very same field, such as securities law or civil-rights law – it is reasonable to believe that the terminology bears a consistent meaning.”). Thus, “[i]f a

statute uses words or phrases that have already received authoritative construction by the jurisdiction's court of last resort ... they are to be understood according to that construction.” *Id.* at 322.

In *Pollard v. E. I. DuPont de Nemours & Co.*, the Supreme Court interpreted the 1964 Civil Rights Act to match the Court's previous interpretation of the National Labor Relations Act from 30 years earlier, because the newer statute “closely tracked” the older language. 532 U.S. 843, 848 (2001).

Similarly, in *Communications Workers of America v. Beck*, the Court construed a passage in the National Labor Relations Act to match its previous interpretation of the Railway Labor Act, because the two statutes used “nearly identical language.” 487 U.S. 735, 744-45 (1988). The previous interpretation, the Court stated, was “far more than merely instructive here: we believe it is controlling, for [the two statutes] are in all material respects identical.” *Id.* at 745. There, the passages in the two statutes were enacted four years apart, and the Court found it “clear that Congress intended the same language to have the same meaning in both statutes.” *Id.* at 746-47.

Here, the Mine Act was enacted just seven years after the OSH Act, and it is well-recognized that Congress “cut[] the Mine Act rulemaking provisions ... from the pattern used in the [OSH Act].” *Oil, Chem. & Atomic Workers Int’l Union v. Zegeer*, 768 F.2d 1480, 1486 n.8 (D.C. Cir. 1985). Like the two provisions in *Beck*, 487 U.S. at 746, section 101(a)(6)(A) of the Mine Act is the “statutory equivalent” to section 6(b)(5) in the OSH Act. So *Benzene* is just as controlling for interpretations of the Mine Act as the prior case controlled *Beck*.

C. Other provisions in the Mine Act indicate that MSHA must demonstrate significant risk before regulating.

There is yet more. Besides copying the OSH Act language that the Supreme Court would eventually interpret to imply a “significant risk” prerequisite, the Mine Act includes additional provisions clearly signaling as much. For example, “for each toxic material or harmful physical agent which is used or found in a mine,” the Department of Health and Human Services is required to “determine whether such material or agent is potentially toxic at the concentrations in which it is used or found in a mine.” *Id.* § 811(a)(6)(B). Thus, not only must a material be “toxic” or “harmful” to trigger regulation—a characteristic that *Benzene* said means “significant risk”—the Mine Act calls for a

determination by another agency whether the material is “toxic” in actual mining conditions.

That determination would be pointless if MSHA’s mandate were to eliminate *all* risk from the mining industry. To the contrary, the instruction is that, *if* a material is toxic, HHS should assess the degree of risk presented in actual operations. Surely Congress intended that assessment to be meaningful in MSHA’s regulations—a use that presupposes MSHA is to regulate only where risks are significant.

Further support is found in the Mine Act’s requirement that MSHA’s standards are to “prescribe ... warning[s] ... to insure that miners are apprised of all hazards to which they are exposed.” 30 U.S.C. § 811(a)(7). Thus, Congress recognized that miners may still be “exposed” to “hazards” even with MSHA’s standards in place. The statute cannot at the same time mandate that the standards achieve absolute safety.

Finally, the Court noted that the OSH Act defined a “safety and health standard” to mean a rule “reasonably necessary or appropriate to provide safe or healthful employment and places of employment.” 448 U.S. at 642. It followed, the Court reasoned, that before imposing a standard OSHA had to find that workplaces are “unsafe,” which does not

equate to “risk-free” but rather means the presence of a significant risk. 448 U.S. at 642.

On this point, the Mine Act is distinct, but it is a distinction without a difference. Its definition of “standard,” 30 U.S.C. § 802(l), does not include such language but that is because, unlike the OSH Act, at the time of its enactment the Mine Act established interim standards imposed by Congress, for which it would make little sense to include a precondition or qualifier as in the OSH Act definition.

Instead, Congress included language in the Mine Act similar to the OSH Act, just in a different place: when MSHA develops or revises a standard, it must write an “improved” standard only “as may be appropriate ... for the protection of life and prevention of injuries.” 30 U.S.C. § 811(a). “*Appropriate*” means “suitable or proper in the circumstances.” NEW OXFORD AMERICAN DICTIONARY at 77 (3d ed. 2010). “*Improved*” means “having become or been made better.” “Improved,” OXFORD ENGLISH DICTIONARY ONLINE, (available at [google.com](https://www.oed.com) “improved definition”) (accessed November 22, 2024). The statute thus authorizes MSHA to revise an existing standard “as may be suitable or proper in the circumstances,” and only if the revision will make the existing standard

“better.” 30 U.S.C. § 811(a). Section 101(a)’s reference to “improved” standards thus provides the same sort of limitation that *Benzene* found in the OSH Act’s definition of a “standard.”¹⁰

Benzene considered a similar provision in the OSH Act requiring OSHA to explain why a revised rule would “better effectuate” the purposes of the OSH Act. 448 U.S. at 644. To avoid being a “meaningless formality,” the Court said 29 U.S.C. § 655(b)(8) “must be read to impose upon the Secretary the duty to find that an existing national consensus standard *is not adequate to protect workers from a continuing and significant risk of harm.*” 448 U.S. at 644 (emphasis added). This, the Court said, required the agency “to find that *exposures at the current permissible exposure level ... present a significant risk of harm* in the workplace.” 448 U.S. at 644-45 (emphasis added). The OSH Act’s requirement that a replacement standard “better effectuate” the purposes of the Act is similar to the Mine Act’s requirement that a revised standard be “improved.” 30 U.S.C. § 811(a).

¹⁰ MSHA has acknowledged throughout this rulemaking that the language of Section 101(a) requires that any new standard must “be ‘improved’ over any standard that it replaces or revises.” *Lowering Miners’ Exposure to Respirable Crystalline Silica and Improving Respiratory Protection*, 88 Fed. Reg. 44852, 44859 (July 13, 2023).

D. Without a clear mandate authorizing MSHA to regulate any risk – no matter its significance – would raise serious constitutional questions that can and should be avoided.

In *Benzene*, the Supreme Court declined to interpret the OSH Act to authorize the agency to address risks less than significant absent a “clear mandate” saying so. 448 U.S. at 645. The same principle must apply here because this reluctance arises from constitutional avoidance. As the Court explained, “[i]f the Government was correct in arguing that neither § 3(8) nor § 6(b)(5) requires that the risk from a toxic substance be quantified sufficiently to enable the Secretary to characterize it as significant ... the statute would make such a ‘sweeping delegation of legislative power’ that it might be unconstitutional.” 448 U.S. at 646.¹¹

Indeed, the notion that Congress actually mandated an agency to drive its regulations to that point—proof that there is “**no** risk”—is startling, and economically irrational. As the Court noted in *Benzene*, because “there are literally thousands of substances used in the workplace that have been identified as carcinogens or suspect carcinogens, the Government’s theory would give OSHA power to impose

¹¹ Justice Rehnquist deemed the OSH Act unconstitutional for this reason. *Id.* at 688.

enormous costs that might produce little, if any, discernible benefit.” *Id.* at 645. According to the Court, “[i]n the absence of a clear mandate ... it is unreasonable to assume that Congress intended to give” an agency such “unprecedented power over American industry,” *Id.* at 645, and “[a] construction of the statute that avoids this kind of open-ended grant should certainly be favored.” 448 U.S. at 646.

Those observations apply equally here. This Court, therefore, should be equally hesitant to allow MSHA to revise and allegedly “improve” an existing standard governing toxic substances without a predicate finding that the existing standard actually poses a significant risk. Because the constitutional doubt canon “militates against not only those interpretations that would render the statute unconstitutional but also those that would even raise serious questions of constitutionality,” READING LAW, p. 247-48, and here a reasonable alternative interpretation (endorsed by the Supreme Court) exists, a threshold showing of significant risk is “not only reasonable, but necessary.” *In re United Mo. Bank, N.A.*, 901 F.2d 1449, 1456-1457 (8th Cir. 1990).

Surely, the “best reading” of the Mine Act, as required by *Loper Bright*, is to interpret it “in a way that avoids placing its constitutionality

in doubt.” READING LAW, p. 247. Like *Benzene*, this Court should reject the “extreme position” that an agency can regulate absent a showing of significant risk. 448 U.S. 641.

E. The Eleventh Circuit decision absolving MSHA from its obligation to find “significant risk” before regulating was incorrectly decided.

Against the plain meaning of the Mine Act, interpreted in accordance with Supreme Court precedent, MSHA relies on two cases, one decided by the Eleventh Circuit and, to a much lesser degree, another from the D.C. Circuit. 89 Fed. Reg. at 28303 (quoting *Nat’l Mining Ass’n v. United Steel Workers*, 985 F.3d 1309 (11th Cir. 2021) (“*NMA 11*”) and *Nat’l Min. Ass’n v. MSHA*, 116 F.3d 520 (D.C. Cir. 1997) (“*NMA DC*”)). To the extent these cases suggest MSHA is not obligated to determine significant risk as a prerequisite to establish health and safety standards, they are wrong. Moreover, neither case went so far as MSHA now demands in applying the New Rule to the sorptive clays industry, and both were incorrect to suggest *Benzene* is inapplicable to MSHA.

NMA 11 reviewed a rule changing the timing of workplace examinations. Previously an operator had to examine workplaces once per shift; in 2016, MSHA promulgated a rule requiring the examination

before the shift started. 985 F.3d at 1314. The 2016 rule also required notification to miners of any adverse conditions found and expanded the scope of the records required to be kept. *Id.* at 1314-15. Multiple industry petitioners contended that MSHA had to find that significant risk existed under the prior rule before MSHA could revise it. Although in theory the revised rule could have been justified largely under the authority of section 103(h), 30 U.S.C. § 813(h) (allowing MSHA to require recordkeeping), the Eleventh Circuit made a sweeping statement that MSHA had no obligation to identify a significant risk before regulating. 985 F.3d at 1316-17.

A small change in the timing of when mine inspections occur is a far cry from requiring the entire sorptive clays industry to install exorbitantly expensive engineering controls to comply with the New Rule. The outcome in *NMA 11* is patently distinguishable from what MSHA has done here. Conversely, if MSHA's actions are allowed here, it would extend the *NMA 11* case to an entirely new and expansive regulatory territory, where MSHA's asserted authority really would constitute the invalid delegation that the *Benzene* plurality feared (and Justice Rehnquist thought was already present in the OSH Act).

But this Court need not go there because the *NMA 11* decision is wrong and unpersuasive on its own terms. The Eleventh Circuit ignored most of the similarities between the Mine Act and the OSH Act features that motivated *Benzene*. Instead, its decision gave several reasons for thinking the Mine Act is different enough from the OSH Act that *Benzene* does not control the interpretation. All are mistaken.

First, the court noted that the OSH Act defines “standard” to be a rule “necessary or appropriate to provide *safe* or healthful workplaces,” whereas the Mine Act calls for “protection of life and prevention of injuries.” 985 F.3d at 1316-17. *Benzene* had held “safe” is not the same as risk-free, and *NMA 11* then said “protection” and “prevention” are “both stronger and more specific than ‘safe.’” 985 F.3d at 1317. *NMA 11* hypothesized that a workplace could present “a small enough risk of harm” that one would not call it “unsafe,” yet there might still be injuries that could be prevented. *Id.*

As noted above, the Mine Act repeatedly calls for the standards to foster safety. In fact, Congress declared the purpose of the Act as developing standards “to protect the health and *safety*” of miners. 30 U.S.C. § 801(g)(1) (emphasis added). Such statements of purpose are “an

appropriate guide’ to the meaning of the [statute’s] operative provisions,” and “the placement of such a statement” in a purposes section “makes no difference.” *Gundy v. United States*, 588 U.S. 128, 142 (2019) (alteration in original). So, the Mine Act does indeed make “safe” the standard, just like the OSH Act.

Even if it did not, the talismanic significance the Eleventh Circuit placed on the word “safe” is improper. *Benzene* did not say that “safe” means “no significant risk.” Rather, the Supreme Court took account of that word alongside many other signals that the OSH Act does not allow the regulation of insignificant risks. Faithful respect for *Benzene* means reflecting its full reasoning. All the signals that *Benzene* found in the OSH Act are present in the Mine Act (including, as just noted, a mandate of “safety”), but the Eleventh Circuit ignored most of them.

The OSH Act mandates standards that are “necessary and appropriate” to make workplaces “safe.” 29 U.S.C. § 652(8). The Mine Act calls for standards “appropriate” “for the protection of life.” 30 U.S.C. § 811(a). That nuanced phrase no more authorizes risk-free workplaces than does the OSH Act formulation. At most, the change in wording signals some difference in meaning. *See* 985 F.3d at 1317.

But nothing about the Mine Act language communicates zero-risk or grants regulatory authority to act against insignificant risks. Part of the difference in meaning is actually that the Mine Act phrase is *narrower* than the OSH Act version, in that “protection of life and prevention of injuries” does not cover non-life-threatening illnesses. And no sensible person would say that eliminating all risks to life is “appropriate” for the protection of life. “[A]ppropriate’ is ‘the classic broad and all-encompassing term that naturally and traditionally includes consideration of all the relevant factors.’” *Michigan v. EPA*, 576 U.S. 743, 752 (2015). Thus, this clause cannot mandate a single-minded elimination of all risk to the exclusion of other considerations—including whether the risk is significant.¹²

Second, the Eleventh Circuit said it was important that OSHA was required to conduct cost-benefit analyses for its standards, whereas (the court said) “there is no indication that the Mine Act itself requires MSHA to conduct a cost-benefit analysis.” 985 F.3d at 1317-18. Both statements are incorrect. The Supreme Court held long ago that OSHA is not

¹² The Eleventh Circuit recognized that “appropriate” is a “capacious” term, but then concluded that it *excludes* consideration of whether a risk is significant. 985 F.3d at 1317. That reasoning is backwards.

required to do cost-benefit analysis of its standards. *Am. Textile Mfrs.*, 452 U.S. at 511-12. Instead, it must assess the feasibility of its standards. *Id.* at 519-20. Similar language is present in the Mine Act, and the Eleventh Circuit itself holds MSHA must find a standard is feasible (technologically and economically) before imposing it. *Nat'l Mining Ass'n v. Sec'y of Labor*, 153 F.3d 1264, 1268-69 (11th Cir. 1998).

The word “appropriate” in the Mine Act mandates some sort of analysis like that, because “[o]ne would not say that it is even rational, never mind ‘appropriate,’ to impose billions of dollars in economic costs in return for a few dollars in health or environmental benefits.” *Michigan*, 576 U.S. at 752. *Am. Text. Manufacturers* relied on the context to conclude the necessary economic analysis is feasibility. 452 U.S. at 519-20. For *NMA 11* to say the word “appropriate” means no economic analysis at all was contrary to multiple Supreme Court precedents.

Third, the Eleventh Circuit pointed out that the Mine Act does not “requir[e] MSHA to establish priorities to ensure that the most serious hazards are addressed first.” 985 F.3d at 1318. “It was that provision,” the court said, “more than the ordinary cost-benefit analysis, on which the *Benzene* Court relied” for its holding. *Id.* Actually, this feature of the

OSH Act was roughly the fifth thing mentioned in *Benzene*, after “appropriate,” “safe,” “standard,” and the limitation to “toxic materials and harmful physical agents,” 448 U.S. at 644-45, a phrase that is present in Mine Act section 101(a)(6) as well.

And *Benzene* does not turn on the details of the prioritization provision; it said only that requiring some prioritization means Congress must have intended OSHA to address only significant risks. There is a provision in the Mine Act with a comparable effect, though the detailed mechanism is different: as discussed above, for any “toxic chemical or harmful physical agent” present in mines, HHS is supposed to provide MSHA an assessment of whether the substance is toxic in the concentrations actually present. 30 U.S.C. § 811(a)(6)(B). This provides the same signal that *Benzene* found in the OSH Act’s prioritization provision. *NMA 11* overlooked it.

Fourth, the Eleventh Circuit said the rule before it was different from the type in *Benzene*, because in *NMA 11* the agency was “not attempting to create risk-free mines, but has instead proposed modest changes to preexisting standards” by “requiring examinations to begin before work.” 985 F.3d at 1318. Just so. That is a sound reason that *NMA*

11 is not persuasive here, where MSHA actually is trying to regulate away even an (at worst) insignificant risk in the sorptive clays industry.

Fifth, the Eleventh Circuit noted that mines are different from other workplaces and that it appeared Congress had found them “*inherently* unsafe.” 985 F.3d at 1318. But *Benzene* said it would raise constitutional concerns for Congress to give OSHA free rein to regulate without a finding of significant risk. *NMA 11* gives no explanation why a delegation otherwise unconstitutional would become permissible just because Congress thinks the delegation is good policy (due to “inherent[]” safety concerns). The statement that mines are inherently unsafe is far too broad a brush anyway; but even if they were, that fact does not provide the agency unbridled authority to regulate the insignificant potential for risk. The *Benzene* prerequisite is still necessary to avoid constitutional concerns; and all the features of the text discussed above still show that Congress incorporated that prerequisite in the Mine Act just as it did in the OSH Act.

Sixth, the court pointed out that MSHA can revise existing standards by adopting “improved” standards, so that Congress evidently contemplated “periodic revisions to improve safety.” 985 F.3d at 1318.

This observation does not indicate the agency's authority is expanded. The agency might identify a significant risk, but only be able to mitigate the risk to a certain extent due to issues of feasibility; then over time, thanks to improvements in technology or other developments, it might be possible to revise the standards to further decrease the significant risk. *Cf., e.g.,* 66 Fed. Reg. 5526, 5529 (Jan. 19, 2001) (MSHA rule concluding “a significant risk ... will remain after the rule is fully implemented”). The mandate for occasional improvements is fully consistent with a “significant risk” prerequisite.

At any rate, this feature in the Mine Act is not actually different from the OSH Act. The Mine Act prescribed certain standards by statute, and then allowed MSHA to revise them with “improved” standards. 30 U.S.C. § 811(a). Similarly, the OSH Act set certain pre-existing standards (“national consensus standards” from private standard-setting bodies and “established Federal standards,” previously adopted by other agencies) as the baseline, and allowed OSHA to revise them. 29 U.S.C. § 655(a), (b)(1). Whenever OSHA revised one of the baseline standards, it had to explain why its revision “will better effectuate the purposes of this chapter.” *Id.* § 655(b)(8). That is a concept quite like the Mine Act's

“improved” standards. *Benzene* held that this feature in the OSH Act supported the holding of a “significant risk” prerequisite. 448 U.S. at 645. *NMA 11* relied on the same feature in the Mine Act to draw the opposite conclusion.

Seventh, because *NMA 11* did not involve toxic materials and Section 101(a)(6)(A) was not at issue, it is not surprising that the court found “the context” of the case before it “far different from the *Benzene* case.” 985 F.3d at 1318. Here, on the other hand, the context is on all fours with the *Benzene* case – in both cases the agencies promulgated a more stringent exposure standard without finding that exposures at the level of the existing standard posed a significant risk.

Finally, the Eleventh Circuit noted that no circuit had previously held MSHA is subject to the same “significant risk” prerequisite as OSHA. 985 F.3d at 1319. But only one circuit had addressed the question at all, namely the D.C. Circuit in *NMA DC*.

In that case, the court suggested that the case before it arose under a “differently worded statute” than Section 3(8) of the OSH Act at issue in *Benzene* and stated: “[a]rguably, *this language* does not mandate the same risk-finding requirement as OSHA.” 116 F.3d at 527 (emphasis

added). But (just like *NMA 11*), *NMA DC* did not involve toxic materials but rather dealt only with Section 101(a). Thus, when it referred to “this language,” the Court was referring solely to Section 101(a), rather than Section 101(a)(6)(A), which was not at issue in that case. Moreover, the court did not discuss the rest of the statute or the various rationales in *Benzene*. In fact, it did not actually decide the question one way or the other, and actually analyzed the rulemaking at issue under the *Benzene* significant risk standard. *Id.* at 527-28.

Importantly, in a subsequent case, the D.C. Circuit assumed that MSHA *is required* to make significant-risk findings. *Kennecott Greens Creek Mining Co. v. MSHA*, 476 F.3d 946 (D.C. Cir. 2007). *Kennecott* upheld several diesel particulate matter (DPM) regulations because it found that MSHA had “adequately demonstrated that DPM presents a *significant risk* to the health and safety of miners.” *Kennecott*, 476 F.3d at 952 (emphasis added). Because *Kennecott* involved a toxic substance (DPM), the Court construed *both* Section 101(a) and Section 101(a)(6)(A), 476 F.3d at 952, and repeatedly referenced the “significant risk” standard. *Id.* at 953-54. Accordingly, neither case relied on by MSHA to sidestep its obligation to find that occluded quartz in sorptive clays poses

a significant risk at regulatory levels allowed under MSHA's previous standard can give MSHA the cover it desires.

Ironically, MSHA itself once considered the *Benzene* significant risk predicate binding on and applicable to its rulemaking. In its 2001 DPM rulemaking, for instance, MSHA said “the statutory language about risk in the Mine Act is similar to that under the OSH Act,” 66 Fed. Reg. at 5574, and even declared that “[t]he benzene case ... *provides the starting point* for MSHA's analysis of this issue.” *Id.* at 5654 (emphasis added). Thus, the reason there were no court decisions prior to *NMA 11* that held MSHA is free from *Benzene*'s “significant risk” threshold is that for decades MSHA took for granted that *Benzene* applies.

Given that history, it will not be unprecedented for this Court to hold that MSHA must find a significant risk to justify regulating silica in sorptive clays. The Court will simply be restoring the *status quo* that existed before *NMA 11*, and rejecting the same “extreme position” the Supreme Court rejected in *Benzene*. 448 U.S. at 641.

F. MSHA failed to establish “significant risk” under the existing standard in the sorptive clay industry.

Prior to its promulgation of the New Rule, MSHA did not find a significant risk of material impairment of health or functional capacity

at the exposure levels allowed under the agency's long-standing limits; it did not even try. Instead, it simply disclaimed any obligation to do so. 89 Fed. Reg. at 28303 ("MSHA, unlike OSHA, has no requirement to identify a 'significant risk' before promulgating rules to protect miners' health and safety.").¹³

OSHA, on the other hand, carefully analyzed whether significant risk existed and found that the scientific evidence "provided no sound basis" for determining sorptive clays present significant risk from silica. 81 Fed. Reg. at 16380. The scientific developments since 2016 only bolster that determination.

MSHA insists it can impose its New Rule on the sorptive clays industry anyway, because the evidence does not "disprove the health-based risks associated with exposure to respirable crystalline silica or support a conclusion that sorptive minerals present no risk." *Id.* at 28303.

¹³ Because of the distinct and unique characteristics of occluded quartz in sorptive clays, MSHA cannot rely on any significant risk determinations for other forms of crystalline silica to argue that it has met its burden. Moreover, even without these distinctions, MSHA acknowledges that because the metal/nonmetal mining industry (the regulatory sector that includes sorptive clay mining) "produces commodities that contain varying degrees of respirable crystalline silica, it is important to examine each commodity separately." 89 Fed. Reg. at 28226.

But *Benzene* makes clear that before an agency is allowed to revise an existing standard, “the *burden [is] on the agency* to show” that exposure under the existing standard “presents a significant risk of material health impairment.” 448 U.S. at 653 (emphasis added). *See also* 5 U.S.C. § 556(d).

MSHA cannot flip the burden of proof, nor can it impose a health and safety standard without any determination of significant risk and arrogate to itself authority to regulate sorptive clay mining up to the point that the regulated entity proves there is “no risk.” *Benzene* and the Constitution forbid such a sweeping delegation of legislative power. 448 U.S. at 646. This Court should say so.

III. MSHA’s Application of the Silica Rule to Sorptive Clays Is Arbitrary and Capricious and Represents a Serious Abuse of Discretion by MSHA.

The APA’s prohibition against arbitrary and capricious action establishes vital guardrails on agency rulemaking that prevents agencies from running afoul of the rulemaking records, or from simply paying lip service to the record while forging ahead with predetermined policy or political objectives. The submission of stakeholder information is an

essential part of the rulemaking process, and comments should inform and shape the rules that agencies make.

That is not what happened here. Rather, MSHA offered up flimsy objections and unsupported speculation to support its inclusion of sorptive clays, even though the agency admittedly could not determine what (*or even whether*) risk was posed by the unique variety of occluded quartz in sorptive clays, and did so because the Petitioners could not definitively prove a negative – that occluded quartz poses “no risk.”

To justify this position, MSHA disregarded, dismissed, brushed aside, and simply ignored the voluminous scientific record before it showing that reliance on toxicity determinations related to crystalline silica not of the occluded quartz variety (*i.e.*, freshly ground or fractured quartz, pure quartz, etc.) would inaccurately exaggerate the risk potential of exposure in Petitioners’ industry.

But it cannot make the record vanish, and that record does not rationally support the decision the agency made to include sorptive clays under its New Rule. Inclusion of sorptive clays in the New Rule is, therefore, arbitrary and capricious and an abuse of discretion. *See Calumet Shreveport Ref., L.L.C. v United States Env’t Prot. Agency*, 86

F.4th 1121,1140-1141 (5th Cir. 2023) (finding rule arbitrary and capricious where agency “brushe[d] . . . evidence aside” and failed to “seriously engage with petitioners’ . . . data.”); *see also Grand Canyon Air Tour Coal. v. FAA*, 154 F.3d 455, 468 (D.C. Cir. 1998) (an agency is required to provide a meaningful opportunity for comments, which means that the agency's mind must be open to considering them.); and *Genuine Parts Co. v. Env’t Prot. Agency*, 890 F.3d 304, 312 (D.C. Cir. 2018) (“an agency cannot “ignore evidence that undercuts its judgment; and it may not minimize such evidence without adequate explanation.”).

Without an understanding of the science, it is difficult to demonstrate the shell game MSHA has played with the record evidence. This is SMI’s effort to provide that understanding.

A. Factual Background on Silica in Sorptive Clays

Sorptive clays are a unique type of ancient clay mineral that formed tens of millions of years ago -- typically 90-110 million years ago during the late mid-Cretaceous Period. App.__ (SMI comment to MSHA). These clays formed at low temperature through the interaction of volcanic materials (typically ash) with salty sea water. *Id.* The volcanic material dissolved in the water and then reprecipitated to form one of several

types of clay minerals (also known as aluminosilicates), as well as small amounts of other accessory minerals such as mica, feldspar and both amorphous silica and crystalline silica (quartz). These sorptive clays exist in only a few discrete geological deposits in the United States. Id.

Sorptive clays are very soft ranking only 1-2 on the standard 1-10 Mohs hardness scale. Id. In the ground, they contain about 30 percent water (by weight), which further decreases their hardness and makes them much softer than the hard rock and ore encountered in other types of mining. Id. When excavated, dried at low temperatures to remove some of the moisture, and gently processed, these highly absorbent clays have commercial value as absorbents used for cat litter, spills of oil or other liquids, animal feed binders, and numerous other commercial purposes. Id. Producing these absorbent products is the business of SMI's members. Id.

The processes that produce the sorptive clays also produce crystalline silica (SiO_2) in the form of quartz – one of the most common minerals in the earth's crust. Id. Silica in sorptive clays exists in a crystalline form, in which the silica molecules are arranged in a highly ordered, crystalline pattern, and in an amorphous form, where the silica

molecules lack any orderly, crystalline structure. *Id.* This case is about the crystalline form of silica (i.e. quartz) rather than the amorphous form because MSHA, like OSHA before it, chose to exclude amorphous silica from its rulemaking based on the absence of sufficient evidence of toxicity.¹⁴

B. Quartz from sorptive clays is characterized by occluded coverings coating the entire quartz particle.

Quartz found in sorptive clays is distinctly different from other forms of quartz (for instance, pure quartz or quartz found in “hard rock” or coal). It is “occluded” – that is, its surface is entirely covered with aluminosilicate (clay) that formed at the same time as the crystalline silica core, resulting in the intergrowth of the aluminosilicate clay and the quartz mineral. These aluminosilicate-occluded crystalline particles have been embedded in and in equilibrium with the clay matrix in which they are found for hundreds of millions of years.

Definitive scientific research shows that the aluminosilicate occlusions that form the surface of these quartz particles are connected

¹⁴ See 89 Fed. Reg. at 28236 (“amorphous silica ... is not a part of this rulemaking”); 81 Fed. Reg. 16705 (“OSHA . . . did not, include amorphous silica in the proposed rule.”).

at the atomic level to the crystalline silica particle core. *See* ID 5459827; App.____ (Hochella and Murayama 2010).

Scientific study of these aluminosilicate occlusions also show that they are ubiquitous, completely covering the entire surface of all quartz particles from sorptive clays. *See* ID 5459827; App.____ (Berti, 2017) (finding that 100 percent of the observed quartz grains had aluminosilicate coatings); ID 5459827; App.____ (Wendlandt 2007) (testing conducted on hundreds of quartz particles from US sorptive clay deposits documented the ubiquitous presence of aluminosilicate” surface coatings” . . . “leaving no surface exposure of the crystalline quartz particle” and finding raw, dried, crushed, and milled variations of bentonite all with “ubiquitous” coatings).

Extensive testing further demonstrates that exposing aluminosilicate quartz to the lung environment also does not change the nature of the particle. Laboratory testing of these particles by incubating them in a surrogate pulmonary surfactant did not remove the occlusive coatings. App.____ (Wallace 1996). Even after exposure to a liquid proxy (mimicking the fluid that lines the lungs), the entire occluded surface remains intact. App.____ (Wallace 1990).

C. The occlusions on quartz in sorptive clays significantly alter its potential to pose risk.

Surface occlusions of quartz particles from sorptive clays fundamentally alters particle surface properties, reducing their toxicity potential, and thereby greatly mitigating any health risks associated with exposure to these materials. ID 5459827; App. __ (Miles 2008); App. __ (Creutzenberg 2008). Scientific consensus exists around the fact that the “toxicity of quartz is highly variable and has been demonstrated to largely depend on the reactivity of its particle surface.” ID 5459827; App. __ (Albrecht, 2005).

To help MSHA understand and appreciate the regulatory importance of the distinction between occluded quartz from sorptive clays and pure quartz, SMI introduced into the record and informed MSHA about an exhaustive volume of independent¹⁵ scientific literature discussing the unique characteristics of quartz found in sorptive clays and how those characteristics mitigate its toxicity potential. App. __, __ (SMI comment and testimony).

¹⁵ Virtually all scientific information, studies, literature, documentation, etc. introduced into the record by SMI was generated from sources wholly unaffiliated with SMI or its member companies.

An animal study comparing the inflammatory response to occluded quartz from sorptive clays and freshly fractured pure quartz is representative of the type of information provided to MSHA (and OSHA) during rulemaking. App.____ (Creutzenberg 2008). The study showed remarkable differences in all inflammatory markers (risk indicators) measured between the occluded quartz and pure quartz, with the occluded quartz showing noteworthy similarities to the saline solution reference control used in the study:

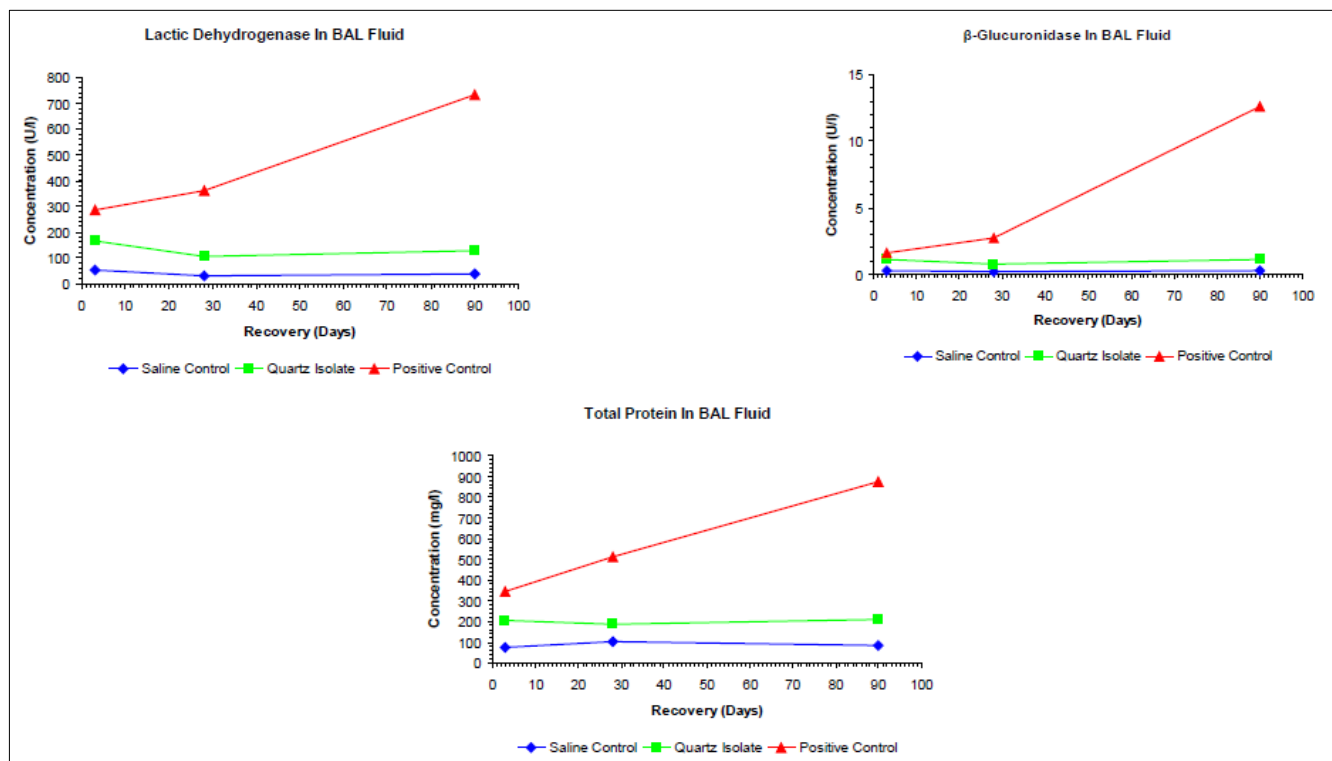


Figure 1: Levels of three markers for inflammatory response (lactic dehydrogenase, beta-glucuronidase, and total protein) were measured to identify how the concentration of these markers changed over time for each of three substances: the positive control (DQ12 "pure" quartz, indicated by the red line with triangle data points); the saline control (expected to remain constant, indicated by the blue line with diamond data points); and the Occluded Quartz (indicated by the green line with square data points).

OSHA’s technical experts evaluating this study concluded that it “demonstrated the quartz in bentonite (i.e., sorptive clay) induces a modest inflammatory reaction that does not persist” – a reaction “notably different from the persistent and stronger response” induced by freshly fractured quartz. App.___ (OSHA final rule). This mild non-persistent inflammation is in stark contrast to the persistent, strong, and progressive inflammatory response – leading to permanent tissue damage – caused by freshly fractured quartz.¹⁶

SMI also provided to MSHA a recent scientific review to demonstrate the similarities between exposure to occluded quartz from sorptive clays and amorphous silica. This was of particular importance because MSHA chose (as had OSHA before it) to exclude amorphous silica from regulation based on a determination that it did not pose sufficient evidence of risk to regulate. SMI submitted a literature review on this subject by Poland in 2023. The study showed that introduction of (synthetic) amorphous silica to the lung elicits an initial, acute

¹⁶Introducing virtually any foreign substance will initially elicit inflammation, so the crucial indicator of toxicity is not mere inflammation, but whether the inflammation *persists* after the initial response. App.___ (Poland 2023).

inflammatory response – like occluded quartz in the Creutzenberg study – that diminishes with time. *See, e.g., App. __* (Poland 2023) (noting that amorphous silica induced an “acute but reversible” response). *See also App. __* (EPA 1996) (citing numerous studies showing that amorphous silica induced a mild inflammatory response that progressively decreased over time).

D. The fracturing of the surface of quartz is what causes adverse health impacts.

The causative agent of disease – the “culprit” that causes quartz to pose a risk to those who are exposed to respirable particles – is the fracturing of the quartz particles, thereby generating highly chemically reactive surfaces. Abundant and uncontradicted record evidence shows:

- The biological reactivity of quartz in occupational settings is thought to be caused by the fracturing of quartz grains in industrial processes; reactive, fractured silica surfaces lead to significantly higher bioactivity than occluded or amorphous surfaces. This is because fracturing releases surface radicals that react with their surroundings, leading to toxicity. ID 5459827; App. __, __ (Fubini, 1987).
- Silica’s toxicity is driven by the “peculiar reactivity” of surfaces created by fracturing, thus leaving “dangling bonds of surface radicals” that react with other molecules in their environment (e.g., lung tissue). ID 5459827; App. __ (Fubini, 1995).
- Freshly fractured quartz increased the levels of markers indicating pulmonary inflammation and cytotoxicity. Freshly

fractured quartz is significantly more toxic than “aged” silica because the aged silica’s surface contaminants reduce the bioavailability of silica surfaces to interact with their surroundings. App.____ (Castranova, 1996).

- Occupations with significant incidence of silicosis share the commonality of being exposed to freshly fractured quartz, which is more cytotoxic and inflammatory than aged quartz. App.____ (Shoemaker, 1995).

Moreover, recent scientific developments in the field of silica toxicity (post-OSHA rulemaking) have identified the critical mechanism by which toxicity causing disease occurs. Essentially, fracturing disturbs the quartz surface, which reacts with the atmosphere to generate silanols. App.____, (Pavan, 2019); App.____, (Pavan, 2020); App.____ (Brown Testimony). These silanols (including a subfamily referred to as “newly free silanols” (NFS) appear on silica surfaces at the time of fracture, and then react with cell membranes to induce inflammation, ultimately, potentially causing disease. SMI informed MSHA about multiple new important scientific studies discussing these findings regarding the mechanism of silica toxicity:

- Quartz polymorphs with different surfaces are not equally pathogenic: quartz with pristine crystal faces showed no biological activity, while mechanical grinding of the same quartz showed markedly increasing biological activity. ID 5459827; App.____ (Pavan et al., 2018a and 2018b).

- The variability of quartz toxicity is explained by differences in surface silanol distribution, indicating that identification of active silanol sites allows for prediction of the toxicity potential of different silica dusts. ID 5459827; App.__ (Pavan & Fubini, 2017).
- Fracturing disturbs the quartz surface, which reacts with its atmosphere and generates silanols. Those surface silanols then react with cell membranes and/or induce inflammation. Introducing aluminum or other impurities or adding surface coatings reduces the silanols' ability to induce such inflammation. App.__ (Pavan, et al., 2019).
- A subfamily of silanols – “newly free silanols” (NFS) – appear on silica surfaces at the time of fracture, and their local density (not their total amount or average density) predicts the silica's toxicity. App.__ (Pavan, 2020).
- Reducing the amount of NFS reduces the silica's membranolytic activity – i.e., the disruption of the membrane that ultimately leads to disease. App.__ (Pavan, 2023).

The upshot of the voluminous amount of scientific study presented to MSHA was that: (1) sorptive clays contain both amorphous and crystalline silica; (2) the crystalline silica in sorptive clays exists as fully aluminosilicate-occluded quartz formed hundreds of millions of years ago; (3) the characteristics, in particular the surface particle characteristics of the ancient occluded quartz are unique, distinctly and meaningfully different from other forms of quartz specifically in relation to the toxic or risk potential of the occluded quartz; and (4) *fracturing of quartz particles is what causes quartz to be toxic* because fracturing

causes the generation of silanols that react with cell membranes inducing inflammation (that can then lead to disease).

E. Quartz in sorptive clays is not fractured during sorptive clay mining or processing activities.

Unlike “hard rock” mineral processing, sorptive clays do not require extensive or intense industrial processing to turn them into useful marketable products. They are subjected to only moderate processing. After being hauled from the mine to the plant site and stockpiled¹⁷ (based on specific performance characteristics), clay from different stockpiles is then blended together to achieve the desired finished product performance requirements and fed into the processing plant. The blended clay is dried in rotary driers in a way that ensures that the clay temperature never exceeds approximately 250° Fahrenheit to remove a portion of the moisture content. After drying, depending on the end market use, some clay will be sized using low impact roller mills. Other clays are simply screened using vibratory screening systems. Following

¹⁷ Stockpiling sometimes is done at the mine site before being hauled to the plant site for processing.

sizing and screening, the sorptive clay is packaged for shipment to customers.¹⁸

As the clay material moves through these processes and is reduced in size, the quartz particles within the clay matrix are not fractured because the material breaks through the softest and dominant clay material with a Mohs hardness of 1-2 (meaning, very soft), and not through the very small and much harder occluded quartz particles themselves, which have a Mohs hardness of 7. The operations in sorptive mineral plants simply do not mill fine enough, nor exert sufficient force to break the aluminosilicate occluded quartz particles.

Laboratory research included in the MSHA record confirmed that occluded quartz from several types of sorptive clays processed using normal sorptive clay industry methods at two different sorptive clay processing facilities was not broken or fractured. App.____. Further, the research shows that the aluminosilicate occlusion layer on these particles remains intact and was unaffected even with intentional aggressive efforts to remove or separate it from the quartz particle core. ID 5459827;

¹⁸ Some clays will have chemical coatings or additives added to them before packaging.

App. __, __ (Wendlandt 2007). These laboratory experiments were designed to test the persistence of the aluminosilicate occlusion on the quartz particles by subjecting the particles to aggressive conditions such as soaking in acid and chemical dispersants, and mechanical sieving, rising, drying, crushing and milling. The studies demonstrate that, regardless of chemical or industrial processing, the aluminosilicate occlusions of these particles remain intact. ID 5459827; App. __, __ (Wendlandt, 2007). They also show that even after isolating the quartz from the clay and consistently dousing it with acid and other dispersants, the occluded coating endured. ID 5459827; App. __, __ (Odom, 1996). The aluminosilicate coatings proved to be “extremely persistent and not readily removed, resisting even the longest duration physical and chemical treatments. . .” ID 5459827; App. __, __ (Wendlandt, 2007). Researchers studying the persistence of the occlusions have concluded that industrial “processing operations have no apparent effect on quartz surface coatings.” ID 5459827; App. __, __ (Wendlandt, 2007).

Occluded quartz found in sorptive clays is *distinctly different from* crystalline silica in “hard rock” minerals and ore that were the primary subjects of MSHA’s rulemaking. The differences relate directly to the

potential of occluded quartz to pose risk to those exposed to respirable particles of the material. Thus, risk analysis on other forms of silica cannot be relied on to make risk determinations about sorptive clays.

F. MSHA's reaction to the science.

To justify its regulation of sorptive clays in the final rule, MSHA disregards or gives short shrift to key components of uncontradicted science. As to the critical occlusions covering the entire surface of quartz in sorptive clays, MSHA boldly states that it “does not agree that occlusion is always present,” because SMI “did not submit evidence demonstrating that . . . [sorptive clays] mined in the United States exclusively contain fully or even partially occluded quartz.”

To the contrary, the record on the occlusions in quartz from sorptive clays, while not convenient for MSHA, is serious, strong and clear. The fact that SMI did not submit specific evidence proving that every grain of every particle of quartz in sorptive clay is occluded is not a rational or justifiable basis for MSHA to disregard the clear evidence that quartz in sorptive clays is occluded with aluminosilicate coatings, and instead base its decision on its unsupported speculation. Speculation contrary to the substantial evidence in the record is irrational, and decision-making that

runs “counter to the evidence before the agency”... is arbitrary and capricious. *McClung v. Paul*, 788 F.3d 822, 828 (8th Cir. 2015).

MSHA also ignores the strong evidence in the record regarding the persistence of occlusions, stating, “there is no evidence that occlusion and the initial reduced toxicity persist following deposition and retention of the crystalline silica particles in the lungs.” Add.103; App.____. This determination patently disregarded record evidence that the aluminosilicate occlusions are bound at an atomic level to and *do not* separate from the quartz particle, even with intentional aggressive efforts mimicking industrial processes to separate the coating from the particle, and even when exposed to fluid simulating the lung environment. See ID 5459827; App.____, _____. It is arbitrary and capricious for an agency to not “consider the whole record, ... including ‘whatever in the record fairly detracts’ from the evidence supporting the agency’s decision.” *Genuine Parts Co. v. EPA*, 890 F.3d 304, 312 (D.C. Cir. 2018) (quoting *Universal Camera Corp. v. NLRB*, 340 U.S. 474 (1951)).

MSHA also does not give weight to the voluminous body of evidence showing that occluded quartz from sorptive clays does not pose the toxicity risk presented by other forms of quartz. As explained above, in

direct contrast to OSHA's conclusion that the record "provided no sound basis for determining the significance of risk for exposure to sorptive clays at the current (100 ug/m³) PEL" (App.__(OSHA Preamble)), MSHA asserted that while "many of the studies provided have argued that there is less toxicity of occluded or aged quartz," they have not shown "that there is *no toxicity or no risk* of disease. . ." App.__(MSHA HEL) and that SMI "has not proven" that the quartz in its material presents no toxicity. App.____.

MSHA's treatment of an important 2008 toxicity study provides another example of how the agency went out of its way to discount and not pay any serious heed to the record evidence regarding the insignificance of toxicity concerns from exposure to occluded quartz. The Creutzenberg study given serious weight by OSHA is dismissed out of hand by MSHA. The agency raises numerous supposed "deficiencies" with the study that it concludes, therefore, "substantially limit the relevance of the study." App.__(Creutzenberg 2008). But the proffered "deficiencies" do not hold water. Most pointedly, for instance, MSHA finds the study deficient because it relies on only a "single rat species." However, single species rat studies are a highly credible and very

common form of animal studies heavily relied upon by regulatory agencies (EPA, OSHA, NIOSH to name a few) to assess and predict risk in humans. In fact, when the result suits its purpose, MSHA credits single species rat studies in this rulemaking. *See, e.g., App.__(Shoemaker 1995); App.__(Porter 2002c); App.__(Vallyathan 1995); App.__(Castranova 1996).*

MSHA's dismissive approach is neither scientifically nor legally justifiable; it is an effort to side-step important science that did not fit MSHA's desired regulatory decision. However, it is arbitrary and capricious for an agency to "ignore evidence that undercuts its judgment." *City of Kansas City v. Dep't of Hous. & Urb. Dev.*, 923 F.2d 188, 194 (D.C. Cir. 1991) ("agency action based on a factual premise that is flatly contradicted by the agency's own record ... cannot survive review under the arbitrary and capricious standard.").

SMI also disregards as "irrelevant" the important similarities between the effects of exposure to occluded quartz and amorphous silica. *See App.__(Poland 2023).* Rather than attempting to evaluate these similarities, MSHA dismissively declares the analysis of amorphous silica as "irrelevant" because amorphous silica was not included within

the scope of the New Rule. (“Since this 2020 surface area comparison study described by Poland et al. (2023) focused on amorphous silica, which is not a part of this rulemaking, it was deemed unsuitable for inclusion in MSHA’s final Health Effects document.”) *But that was the entire point*, because the evidence showed the equivalence between quartz from sorptive clays, which MSHA proposed to regulate, and amorphous silica, which it chose to exclude from regulation. Deeming irrelevant a study that shows silica in sorptive clays causes similar health effects to amorphous silica, excluded from MSHA’s New Rule, is arbitrary and capricious. *Cal. Cmty. Against Toxics v. EPA*, 928 F.3d 1041, 1057 (D.C. Cir. 2019) (“Agency action is ... arbitrary and capricious if it offered insufficient reasons for treating similar situations differently.”).

MSHA also arbitrarily attempts to support its decision by speculating that sorptive clays processing potentially fractures quartz. It states, “during mineral processing, sorptive minerals may be crushed, heated, dried to remove moisture, re-crushed, and then screened to produce various grades of finished products. These processes have the *potential* to fracture and change the nature of the surface characteristics

of the quartz in the mined commodity.” Add.102; App.__(emphasis added). But MSHA offered no evidence that these processes do in fact fracture the silica, instead stating that its unexplained “experience” with mining and processing of sorptive minerals “includes the use of grinding and milling processes.”

SMI provided information to MSHA (and before that, to OSHA) that its processes do not fracture the quartz embedded in the clay. OSHA credited this information; MSHA impermissibly speculated that the industry is not correct about its own operations. *See Calumet*, 86 F.4th at 1141 (EPA could not “gloss over petitioner’s information in lieu of unsubstantiated speculation”).

IV. MSHA Failed to Rely on the Best Available Evidence to Evaluate Sorptive Clays.

In addition to being prohibited from arbitrary and capricious rulemaking under the APA, the Mine Act requires MSHA to rely on “the best available evidence” when establishing regulations. 30 U.S.C. § 811(a)(6)(A). MSHA violated that duty by relying on what seem to be cherry-picked studies showing toxicity that do not fairly represent sorptive clays. For instance, rather than give credence to the evidence submitted by SMI, MSHA instead relied primarily on a series of animal

studies comparing the toxicity of freshly fractured quartz to “aged” quartz (Shoemaker et al., 1995; Vallyathan et al., 1995; Porter et al., 2002c.). Reliance on these studies to justify regulation of occluded quartz in sorptive clays is in contravention of MSHA’s obligation to use the best available evidence to make regulatory decisions. These studies are not of occluded quartz; they are of fractured quartz that has been “aged” for only 60 days –rather than 60 to 110 million years in a clay matrix, like geologically ancient occluded quartz in sorptive clays. Even the 60-day aging process shows the beginning of a toxicity mitigation process, but an equivalent comparison cannot be made between 60 days of aging and 60 million years. Beyond this, to justify regulating sorptive clays, MSHA relied upon a study that purposely controlled for the presence of any surface occlusions. The aged quartz did not have the critical aluminosilicate occlusion found on sorptive clays that MSHA’s own studies recognize significantly inhibit toxicity. App.__ (Shoemaker 1995). Surely, these studies are anything but “the best available evidence” to evaluate risk from ancient occluded quartz in sorptive clays.

MSHA also relied on a series of epidemiological studies of industries not comparable to the sorptive clay industry to justify

regulating sorptive clays. App.____ (Harrison, 2005) (tin and tungsten miners), App.____ (Chen 2005) (Chinese pottery workers) and App.____ (Love 1995) (United Kingdom heavy clay industry). Tin and tungsten mining is of course completely inapposite to sorptive clay mining, and while the pottery and heavy clay industries mine and process a type of clay, it is not sorptive clay and the processing activities are not analogous to the processes of sorptive clay producers. In fact, pottery and heavy clay processing involves extremely high temperature heating of clay in kilns that can thermally fracture the quartz in the clay, and, depending upon the temperature, convert the quartz to the biologically aggressive forms of quartz (e.g., Cristobalite and Trydimite). Nothing close to the level of heat used in pottery production is used in the sorptive clays industry. Accordingly, reliance on these studies to make any evaluation of the toxicity characterization of quartz in sorptive clays is wholly inappropriate and axiomatically not “the best available evidence” to understand risk from occluded quartz in sorptive clays. Moreover, that the agency must act “on the basis of the best available evidence” implies that its review will take account of the differences between industry sectors. Clearly, MSHA relied on data that was not applicable to sorptive

clays to make risk decisions about the unique form of occluded quartz (and its attendant toxicity profile) for the sorptive clays industry.

In sum, in analyzing the risk from quartz found in sorptive clays, the agency chose to credit and rely on studies that are, at best, only marginally relevant to these clays and the sorptive clays industry rather than the volumes of better and more applicable peer-reviewed and published science directly relevant to sorptive clays. By doing so, the agency broke any rational connection between the regulatory choice made and the facts found, a hallmark of arbitrary and capricious rulemaking. *See Burlington Truck Lines, Inc. v. U.S.*, 371 U.S. 156 (1962).

In the end, MSHA made a policy decision running counter to its own record. But it is arbitrary and capricious and an abuse of discretion to make a decision that is not rationally connected to the record. *City of Kansas City v. Dep't of Hous. & Urb. Dev.*, 923 F.2d 188, 194 (D.C. Cir. 1991) (“agency action based on a factual premise that is flatly contradicted by the agency's own record ... cannot survive review under the arbitrary and capricious standard.”).

V. MSHA’s Rulemaking Violated the Mine Act’s Requirement to Rely on the Latest Scientific Evidence in Establishing Regulations.

Section 811(a)(6)(A) also requires MSHA to consider the “latest scientific evidence in the field” when establishing regulations thereunder. In the years between OSHA’s rulemaking and MSHA’s, much scientific attention was given to the study of the causal agent of silica toxicity. This “latest scientific evidence in the field” demonstrates that the fracturing of quartz particles, and the consequent generation of silanols, causes disease for those exposed to respirable particles of the material. Even though MSHA said it considered this recent evidence, it disregarded it and forged ahead to regulate petitioners’ industry notwithstanding this evidence (and with mounds of evidence that ancient occluded quartz is not fractured quartz and does not act like fractured quartz). “[S]tating that a factor was considered . . . is not a substitute for considering it,” *Getty v. Fed. Sav. & Loan Ins. Corp.*, 805 F.2d 1050, 1055 (D.C. Cir. 1986), and “[n]odding to concerns raised by commenters only to dismiss them in a conclusory manner is not a hallmark of reasoned decision making.” *Gresham v. Azar*, 950 F.3d 93, 103 (D.C. Cir. 2020). In so doing, MSHA violated the Mine Act’s important caution that MSHA

must rely on recent scientific evidence when promulgating health standards.

CONCLUSION

The agency's actions exceed its statutory authority and are arbitrary and capricious in violation of the APA, if not of the Constitution.

This Court should vacate MSHA's New Rule as it applies to the sorptive clays industry. In the alternative, it should remand the New Rule to the agency for further consideration of the important legal and factual issues raised herein.

Respectfully submitted,

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STATEMENT ABOUT SAFETY OF BRIEF

This brief and accompanying addendum have been scanned for viruses and are virus-free.

/s/ Mark M. Trapp

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/s/ Mark M. Trapp

CERTIFICATE OF SERVICE

I hereby certify that on December 20, 2024, I electronically filed the foregoing with the Clerk of the Court for the United States Court of Appeals for the Eighth Circuit by using the CM/ECF system. Participants in the case who are registered CM/ECF users will be served by the CM/ECF system.

/s/ Mark M. Trapp
